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09/830,582	08/02/2001	Kazumasa Ikushima	010620	5907

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EXAMINER	
PARKER, FREDERICK JOHN	
ART UNIT	PAPER NUMBER
1762	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

MK-7

Office Action Summary	Application No. 09/830,582	Applicant(s)	
	Examiner	Group Art Unit	

—The MAILING DATE of this communication appears on th cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE —3— MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 10/16/01.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-13 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-13 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☒ All ☐ Some* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 6

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Pat nt Application, PTO-152

☐ Notic of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

(1) if a machine or apparatus, its organization and operation;

(2) if an article, its method of making;

(3) if a chemical compound, its identity and use;

(4) if a mixture, its ingredients;

(5) if a process, the steps.

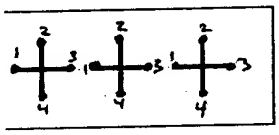
Extensive mechanical and design details of apparatus should not be given.

The abstract is overly lengthy, and should follow the guidelines above.

3. The title of the invention is not descriptive. *A new title is required that is clearly indicative of the invention to which the claims are directed.*

4. The disclosure is objected to because of the following informalities: (1) page 6, 15+, the meaning of "line to go and return" is unclear; (2) the meaning of lines 22-25 on page 6 is unclear and contradictory because based upon figures 1-2, the total number of start and end points of each "of the drawn lines" (assumed to be line segments because lines have no endpoints) may exceed

the number of line segments, see figure below.(3) page 7, line 7, "the meaning of "minimum number of fold of the drawn lines" is unclear. (4) page 13, first paragraph, the phrases "Looking the paste" and "paste is slightly than a" appear to be missing words.(5) page 17, line 18, please cite patent number if issued. Appropriate correction is required.



As shown above start/ end points 1-2-3-4 exceed the number of segments (1-3 and 2-4).

Claim Rejections - 35 USC § 112

5.The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1,3,7,10,11,13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 1 is vague and indefinite because it is unclear how a linearly drawn paste can have "joining surfaces", and further it is unclear what "surfaces" are joined because no active joining step is required.

- Claim 3: "nozzle" lacks antecedent basis in claim 1.

- Claim 7: "radial form" lacks antecedent basis.

- Claim 10 is vague and indefinite because the meaning of "to go and return" is unclear in context.

- Claim 11: "segment lines" lacks antecedent basis; the claim is vague, indefinite, and contradictory because based upon figures 1-2 for example, the total number of start and end points of each segment may exceed the number of line segments (see detailed drawing above under "Specification"). On line 2, the use of the term "lines" by definition is infinite in 2 opposing directions and therefore cannot have start and end points (the Examiner suggests " line segments" is more appropriate).

- Claim 13 is vague and indefinite because it is unclear to what "minimum number of points" refers; it is also unclear what is meant by "the drawn lines are returned" since it is unstated to where the lines are returned.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4,6-7,9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al US 5932012.

Ishida et al teaches applying a sealant paste pattern to a substrate using a paste reservoir tube connected from a source of paste to a dispensing nozzle which deposits paste onto a substrate, the nozzle being driven by a microprocessor in X-Y-Z- directions to form patterns such as shown in figures 13 and 14. As described on column 13, 30 to column 14, 42, a continuous straight line pattern P1 is formed (figure 13c) per claim 1, and then the paste is applied off the linear pattern at a point (PC') which would create a "radial form" pattern per claim 7, the patterns being applied as "segments" as described on column 14, 35-42. The substrate may be moved relative to the nozzle, or as stated on column 15, 61-62, the paste reservoir tube and nozzle may be moved relative to the substrate. While the issue of bubbles is not taught, since the paste

is identically drawn linearly, it would have been inherent that the product would have been the same, i.e. free of bubbles. Since the pattern of figures 13-14 and Applicants' figures 1-3, are essentially the same, the reference meets the limitations of Applicants' claims 11-13 as understood by the Examiner.

9. Claims 1-4,6, 8,10,11 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu US 4824006.

Shimizu teaches an X-Y-Z directional paste application die-bonding apparatus comprising a paste supply means with syringe and syringe holder for applying paste onto a substrate as the syringe needle is moved in X and Y directions to form linear paste segments (per claim 6), such as in figure 7 where an enclosed regular shape is formed per claim 8. It is apparent from figure 7 that the applied paste pattern would not have more start/end points than segment lines if the pattern was started at a corner per claim 11. While the issue of bubbles is not taught, since the paste is identically drawn linearly along any given surface, it would have been inherent that the product would have been the same, i.e. free of bubbles.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al in view of Kawabe et al US 5985069.

Ishida et al is cited for the same reasons discussed above, which are incorporated herein.

Kawabe et al teaches to apply applying sealant paste using a nozzle dispensing technique having movement in X-Y-Z positions which, as shown in figure 1a, includes drawing the paste figure in an enclosed shape using a series of segments, i.e. a rectangle. Given the similarity of the apparatuses of both references and the similar application of sealant pastes, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Ishida et al to apply a series of paste segments to form an enclosed paste pattern as taught by Kawabe because of the expectation of successfully forming the paste pattern.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al in view of Shimizu US 4824006 .

Shimizu and Ishida et al are cited for the same reasons discussed above, which are incorporated herein. Both references teach using paste applicator devices which move in X-Y-Z directions to apply paste designs to substrates. Shimizu expressly teaches the use of the paste application for die bonding(see abstract) and substrates are not limited, thereby including conventional substrates used for die bonding including the lead frame substrate of claim 5. Given the similarity of the overall methods, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

method of Ishida et al by using the method to apply paste to lead frames for die bonding as taught by the similar method of Shimizu because of the expectation of achieving equivalent results due to the fact the X-Y-Z paste application processes are so similar.

14. Claims 5, 12-13 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu US 4824006.

Shimizu is cited for the same reasons discussed above, which are incorporated herein. While it is not stated that start and end points are not located at other than ends of the pattern, since the applicator is able to dispense paste while moving in any X-Y direction, it would have been an obvious variation to start/stop the dispensing anywhere on an intended pattern because of the expectation of identical results to starting/stopping at an endpoint. Performing the application in an expedient manner requiring minimum movement as appears to be required by claim 13 would have been an obvious variation to minimize processing costs and time/ maximize process efficiency which would have been obvious and well-known objectives to one skilled in the art.

Shimizu also teaches the method may be used for die bonding (see abstract) and substrates are not limited, thereby including conventional substrates used for die bonding including the lead frame substrate of claim 5.

15. Claims 7,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu US 4824006 in view of Ishida et al.

Shimizu and Ishida et al are cited for the same reasons discussed above, which are incorporated herein. Both references teach using paste applicator devices which move in X-Y-Z directions to apply paste designs to substrates. Given the similarity of the devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Shimizu by applying radial paste designs in segments as taught by Ishida et al (e.g. figures 13-14) because of the expectation of applying paste patterns for successfully sealing substrates.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred J. Parker whose telephone number is (703) 308-3474.

Fred J. Parker

FRED J. PARKER
PRIMARY EXAMINER

January 6, 2003

9-830582